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ABSTRACT

This study documented elementary teachers' reported practices in mathematics, science, social studies, literature, art, and music. The study also identified the extent to which teachers espoused instructional goals and practices associated with teaching for understanding compared with basic skills approaches. Respondents were 678 elementary school teachers from 35 schools surveyed in California, Michigan, and Florida. Survey analysis indicated that the least common practice reported by teachers in all six subjects was to have students write text more than a paragraph long. The median proportion of time that students spent in writing was only 1-to-5 percent. A second pattern that emerged across all subjects except literature was that teachers tended to focus on practices associated with basic skills instruction rather than practices associated with teaching for understanding. Despite differences between California and Florida in their published policies, the survey showed few consistent differences between California, Florida, and Michigan teachers' reported instructional goals and practices in elementary subjects. A sample teacher survey is appended. (MM)

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Series No. 103

# ELEMENTARY TEACHERS' REPORTS OF THEIR GOALS AND INSTRUCTIONAL PRACTICES IN SIX SCHOOL SUBJECTS

Penelope L. Peterson, Ralph T. Putnam,
Jan Vredevoogd, and James Reineke



## Center for the Learning and Teaching of Elementary Subjects

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## Center for the Learning and Teaching of Elementary Subjects

The Center for the Learning and Teaching of Elementary Subjects was awarded to Michigan State University in 1987 after a nationwide competition. Funded by the Office of Educational Research and Improvement, U.S. Department of Education, the Elementary Subjects Center is a major project housed in the Institute for Research on Teaching (IRT). The program focuses on conceptual understanding, higher order thinking, and problem solving in elementary school teaching of mathematics, science, social studies, literature, and the arts. Center researchers are identifying exemplary curriculum, instruction, and evaluation practices in the teaching of these school subjects; studying these practices to build new hypotheses about how the effectiveness of elementary schools can be improved; testing these hypotheses through school-based research; and making specific recommendations for the improvement of school policies, instructional materials, assessment procedures, and teaching practices. Research questions include, What content should be taught when teaching these subjects for understanding and use of knowledge? How do teachers concentrate their teaching to use their limited resources best? and In what ways is good teaching subject matter-specific?

The work is designed to unfold in three phases, beginning with literature review and interview studies designed to elicit and synthesize the points of view of various stakeholders (representatives of the underlying academic disciplines, intellectual leaders and organizations concerned with curriculum and instruction in school subjects, classroom teachers, state- and district-level policymakers) concerning ideal curriculum, instruction, and evaluation practices in these five content areas at the elementary level. Phase II involves interview and observation methods designed to describe current practice, and in particular, best practice as observed in the classrooms of teachers believed to be outstanding. Phase II also involves analysis of curricula (both widely used curriculum series and distinctive curricula developed with special emphasis on conceptual understanding and higher order applications), as another approach to gathering information about current practices. In Phase III, models of ideal practice will be developed, based on what has been learned and synthesized from the first two phases, and will be tested through classroom intervention studies.

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## Abstract

In this study, we documented elementary teachers' reported practices in six subject areas--mathematics, science, social studies, literature, art, and music. We were particularly interested in identifying the extent to which teachers espoused instructional goals and practices associated with teaching for understanding compared with more "basic skills" approaches. To document teachers' instructional goals and practices, we developed and administered a survey to teachers in three states. To explore possible context effects, we chose our sample of teachers to vary systematically not only by state, but also by other important dimensions of the educational context, including size of district and socioeconomic status of students in the school. By the end of November 1988, we had received signed consent forms and surveys from 678 teachers in 35 elementary schools in six districts in California, Florida, and Michigan.

One striking pattern that emerged across all six subjects was that the least common practice reported by teachers was to have students write text more than a paragraph long. The *median* proportion of time that teachers had students spend in writing was only 1 to 5%. This is particularly interesting because both students' spoken discourse and students' written discourse are central to teaching and learning for understanding

A second pattern that emerged across all subjects except literature was that teachers tended to focus on practices that were associated with basic skills instruction rather than practices associated with teaching for understanding. We found teachers' relative emphases on basic skills activities particularly puzzling given that these teachers taught in schools that had been nominated by district administrators as "particularly effective in helping students develop conceptual understanding, problem solving, and higher level thinking."

We searched for and expected to find differences among teachers in their self-reported knowledge, goals and practices depending on the state and local contexts. In particular, we thought that teachers' reported goals and practices might reflect emphases of state policymakers in the three states. Despite these differences between California and Florida in their published policies, our survey of teachers showed few consistent differences between California teachers' reported instructional goals and practices in elementary subjects and those reported by teachers in Michigan and Florida.

We learned more about the vast distance between the rhetoric of the policymakers and the realities of classroom practice when we conducted case studies of mathematics teaching in some of the survey teachers' classrooms during the 1989-90 school year. After conducting our case studies, we found that we understood much more about how teachers created their practice within the contexts in which they work. We concluded that more than surveys will be necessary to get beneath the rhetoric and to measure and understand the practices of teaching and learning in context.

# ELEMENTARY TEACHERS' REPORTS OF THEIR GOALS AND INSTRUCTIONAL PRACTICES IN SIX SCHOOL SUBJECTS

Penelope L. Peterson, Ralph T. Putnam,
Jan Vredevoogd, and James Reineke[1]

## Introduction

Throughout the 1980s, various groups called for reform in the teaching and learning that is occurring in American schools (Anderson, Hiebert, Scott, & Wilkinson, 1984; Carnegie Forum on Education and the Economy, 1986; National Commission on Excellence in Education, 1983; National Council of Teachers of Mathematics, 1989). In any such reform, teachers will play important roles, for it is teachers who must enact and make real in their classrooms the goals and visions set forth by policymakers (Cohen, 1988; Elmore & McLaughlin, 1988). In spite of the central role teachers play in reform efforts, few researchers have attempted to document systematically the actual goals and instructional practices reported by elementary school teachers as they teach various subject matters. Developing methods for documentation has become particularly salient as policymakers have demanded measures of the reform as it progresses. Some educational researchers and policymakers have suggested that such measures might serve as "indicators" of the condition of education in our country just as economic indicators serve as measures of the condition of our economy (Murnane & Raizen, 1988; Porter, 1991; Shavelson, McDonnell, Oakes, & Carey, 1987).

## A Study of Elementary Teachers' Reported Goals and Practices

In this study, we attempted to document elementary teachers' reported practices in six subject areas--mathematics, science, social studies, literature, art, and music. We were particularly interested in identifying the extent to which teachers espoused

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instructional goals and practices associated with teaching for understanding, thinking, problem solving and thoughtful use of knowledge in contrast to more "basic skills" approaches. We also wanted to examine possible influences of the context on teachers' reported goals and practices. To document teachers' instructional goals and practices, we developed and administered a survey to teachers in three states. We viewed this survey as a pilot for the kind of measure that might be developed as a indicator of teachers' instructional goals and practices.

We conducted the survey during 1988-89 as part of the research of the Center for the Learning and Teaching of Elementary Subjects at Michigan State University, a national research center funded by the United States Department of Education's Office of Educational Research and Improvement to study elementary teaching and learning in mathematics, science, social studies, literature, and the arts. We developed the survey as part of our ongoing work in which we were defining what good teaching might look like that goes beyond basic skills and focuses on thinking, understanding and use of knowledge. In this phase of our work, we devoted extensive time to analyses and review of existing theories and research and to surveys of expert opinion, including interviewing outstanding elementary teachers and university professors in each of the subject disciplines and in education. (See for example, Brophy, 1988; Cianciolo, 1988; May, 1989; Prawat, 1993; Putnam, Lampert, & Peterson, 1990; Roth, 1990).

Defining Learning and Teaching Beyond the "Basics"

We began by defining learning beyond the basics as "higher order thinking," but then searched for another term because this term itself assumes a "basic skills" framework. Researchers in learning have cast doubt on the hierarchical assumptions of learning that pervade much of traditional school practice--that students can engage in critical thinking, problem solving, applications, and other "higher order" thinking only after they have mastered "basic" facts and skills. Rather, all learners are capable of engaging in what have been called "high-level" activities. Contemporary researchers

contend that for meaningful and useful learning to take place, learners need to develop their knowledge within the contexts in which they will use it. After considering these ideas and many others gleaned through analyses of the literature and expert opinion, we revised our thinking and found the term "learning and teaching for understanding and use of knowledge" to be more descriptive and useful. We developed a number of working ideas of what learning and teaching for understanding might look like, both within and across subjects. Some ideas were identified as specific to subject areas, but the following ideas about instructional goals and practices were viewed as common across content domains (Center for the Learning and Teaching of Elementary Subjects, 1993):

- Instructional goals emphasize the development of student understandings within contexts where students use the knowledge they are developing.
- The teacher's role is to actively assess different students' understandings in varied ways and to support students' learning.
- The teacher creates a learning community with opportunities for extensive discourse about shared issues and tasks and possibilities for multiple ways of participating.
- Activities and projects engage learners in problem solving, creating, thinking, inquiry and reflection, not just memory or reproduction.
- Thinking is learned within each subject (such as mathematics or science) in contexts that call for students to think creatively, solve problems, inquire, and reflect as they learn.

The Survey

We intended the survey to provide a picture of the extent to which teachers espoused instructional goals and practices associated with teaching for understanding in contrast to more "basic skills" approaches. Accordingly, most of the survey (Items 7-30) focused on teachers' instructional goals and practices in six subjects--mathematics, social studies, science, art, music, and literature. (See Appendix for copy of complete

survey.) The items were grouped by subject, so teachers answered questions only for the subjects they taught.

To assess teachers' goals, we asked them to indicate their agreement (on a scale of 1 = strongly disagree to 6 = strongly agree) with a number of statements about instructional goals. These items were intended to assess teachers' overall goals for students, especially their emphases on developing students' understanding, thinking, and problem solving versus an emphasis on basic skills and factual knowledge. In each subject one goal emphasized mastering basic skills and factual knowledge; a second goal focused on developing understanding. Teacher were to indicate their agreement with each of these as their primary goals. For visual arts and music, the goals consisted of three statements rather than two--one emphasized the acquisition of basic techniques of production and performance; one emphasized self-expression; and one emphasized understanding and critical thinking about art and music.

The final two goal items in each subject area focused on the role of basic skills, facts, and techniques in learning in ways that promote understanding, thinking, and problem solving. In our earlier analyses we had found that current views of teaching for understanding emphasized the importance of understanding and thoughtfulness pervading all instruction, in contrast to the view that students are capable of "higher order" thinking and problem solving only after they have mastered more "basic" or "low-level" skills and knowledge. In each of the content areas, we wrote statements to capture these two perspectives. One item in each content area stated that students needed to learn basic skills, facts, vocabulary, or techniques *before* they were capable of understanding, critical thinking, and problem solving. A second item stated that the learning of skills, facts, techniques, and vocabulary should take place *within the context* of problem solving or thinking.

A list of instructional practices or activities followed the goals statements in each subject. We asked teachers to indicate on a 7-point scale the approximate percent of

time (from "none" to over "75%") that students in their classrooms spent in each practice. In listing practices, we included practices that we thought would indicate a "basic skills" or "traditional" orientation and practices that we thought would indicate an emphasis on understanding, problem solving, and thinking. In doing so, we realized that no single practice is associated with a particular emphasis and that a particular set of practices does not necessariiy define an understanding orientation or a basic skills orientation. Yet we thought that, across a range of practices, teachers' responses might reflect patterns associated with these differing instructional orientations and goals. For example, in mathematics, we expected that teachers oriented toward understanding and problem solving would report spending more time on having "students solve story problems" and "use manipulative materials or drawings to solve problems" and less time on having "students practice or drill on computational skills." In addition, because discussion, writing, and assessment emerged in our previous analyses as important features of teaching for understanding across content areas, we included an item focused on each of these in the list of practices for each subject.

In addition to the items on instructional goals and practices, we asked teachers to rate how effective and knowledgeable they were in various subject areas compared to other elementary teachers (Items 5 and 6). We also asked teachers to indicate their current teaching assignments and years of teaching experience at various grade levels.

The Respondents

We chose to survey elementary teachers in three states--California (CA), Michigan (MI), and Florida (FL)--because these states represent distinctly different policy contexts, and in 1988, they differed significantly both substantively and procedurally in their approaches to subject area curriculum guidelines and policies at the state level (Freeman , 1989). To explore possible context effects, we chose our sample to vary systematically not only by state but also by other important dimensions of the educational context, including size of district and socioeconomic status of

students in the school. Within each state we selected one large urban district and one moderate-sized district. Within each district we asked administrators to nominate four schools in their district that were recognized as particularly effective in helping students develop conceptual understanding, problem solving, and higher level thinking--two schools that served students of relatively high socioeconomic status (SES) (15% or less of the students qualified for free or reduced lunch) and two schools that served students of relatively low socioeconomic status (50-80% of the students qualified for free or reduced lunch). With the help of the state-level directors of either the Catholic schools or the nonpublic sch ols in each state, we also obtained nominations of two private Catholic elementary schools in each district. We then contacted the principals of these six schools in each district and confirmed their willingness to participate in the survey study.

We asked the principal of each of the 36 selected schools to request that each elementary teacher in the school complete the survey. In a cover letter to the teacher, we indicated that the survey was part of research being conducted by the Center for the Learning and Teaching of Elementary Subjects at Michigan State University, and that we would use what we learned from the study to help improve education in our nation's schools. We stated that the survey was being administered to teachers in several states and that it was important to get information from a large number of teachers on their goals and classroom practices in teaching elementary subjects. Packets of surveys were sent to principals at each school during August or September, 1988. We indicated that teachers' participation was voluntary and that we would guarantee confidentiality of their survey responses. Teachers signed the informed consent form on the bottom of the front page indicating their understanding of the purposes of the study, the guarantee of confidentiality of their responses, and their willingness to participate. Although the principal distributed the surveys to the teachers and returned the packet of

surveys in a self-addressed express mail envelope, the principal did not see the completed surveys of individual teachers.

To ensure confidentiality, each teacher placed the completed survey in a sealed envelope before returning it to the principal. By the end of November, we received signed consent forms and surveys from 678 teachers in 35 of the 36 elementary schools we had selected. The 36th elementary school (a low SES school in the large urban district in California) eventually declined to participate due to unforeseen difficulties that arose during the fall of the school year. Because we were interested in teachers' reported instructional goals and practices by subject, the data set for the analysis of each subject differed slightly, including only the responses of teachers who reported teaching that subject and responded to all the questions for that subject. For example, of the 678 teachers who responded to the survey, 493 teachers reported teaching mathematics and answered all twelve mathematics questions.

Analyses

Because we were more interested in the relative emphases that teachers gave to each of the practices listed than in the absolute proportion of time they spent in each practice, we constructed deviation scores from the mean score for each teacher. We subtracted the teacher's own average response for the eight practices from his or her response for each practice. This resulted in eight deviated practice scores for each teacher. Similarly, we were also interested in teachers' relative emphases on pairs of goals in addition to being interested in teachers' endorsements of the basic skills goal (goal 1) and the understanding goal (goal 2), respectively. Thus, we examined scores for teachers' responses to each goal statement, but we also created two difference scores for teachers' responses to pairs of goals for each teacher. In science, mathematics, social studies and literature by subtracting a teacher's response to goal 1 from his or her response to goal 2 and his or her response to goal 3 from goal 4. In art

and music, a teacher's response to goal 1 was subtracted from the response to goal 3 and the response to goal 4 was subtracted from the response to goal 5.

To explore possible relationships of context to teachers' reported goals and instructional practices, we computed four-way analyses of variance with state (CA, MI, FL), SES of school (low vs. high), grade (kindergarten through sixth), size of district (large vs. moderate) as independent variables and teachers' scores on each of the goals and practices in each subject as dependent variables. We also computed four-way analyses of variance with state (CA, MI, FL), SES of school (low vs. high), grade (kindergarten through sixth), and type of teacher (regular vs. specialist) as independent variables and teachers' ratings of their knowledge and effectiveness in each subject as dependent variables

## Results

### Teachers' Goals and Instructional Practices.

To examine profiles of teachers' reported instructional practices and goals in each subject area, we created "box and whisker" plots (Tukey, 1977) to get a picture of the relative emphases that teachers gave to respective instructional practices and goals within each subject area as well as to compare teachers' reported use of practices that were common across subjects areas. The box in the plot includes 50% of the teachers with scores ranging from the 25th percentile to the 75th percentile. The median is designated by M. The "inner fence," indicated by dashes, represents 1.5 times the range or spread of scores within the box. Starred scores (*) are observed scores that fall beyond the box and inner fence.

Mathematics. Figure 1 shows the box and whisker plot for teachers' reported instructional practices in mathematics. Teachers reported spending the most time on explaining computational procedures or concepts and on having students practice or drill on computational skills--practices clearly associated with the teaching of basic skills.

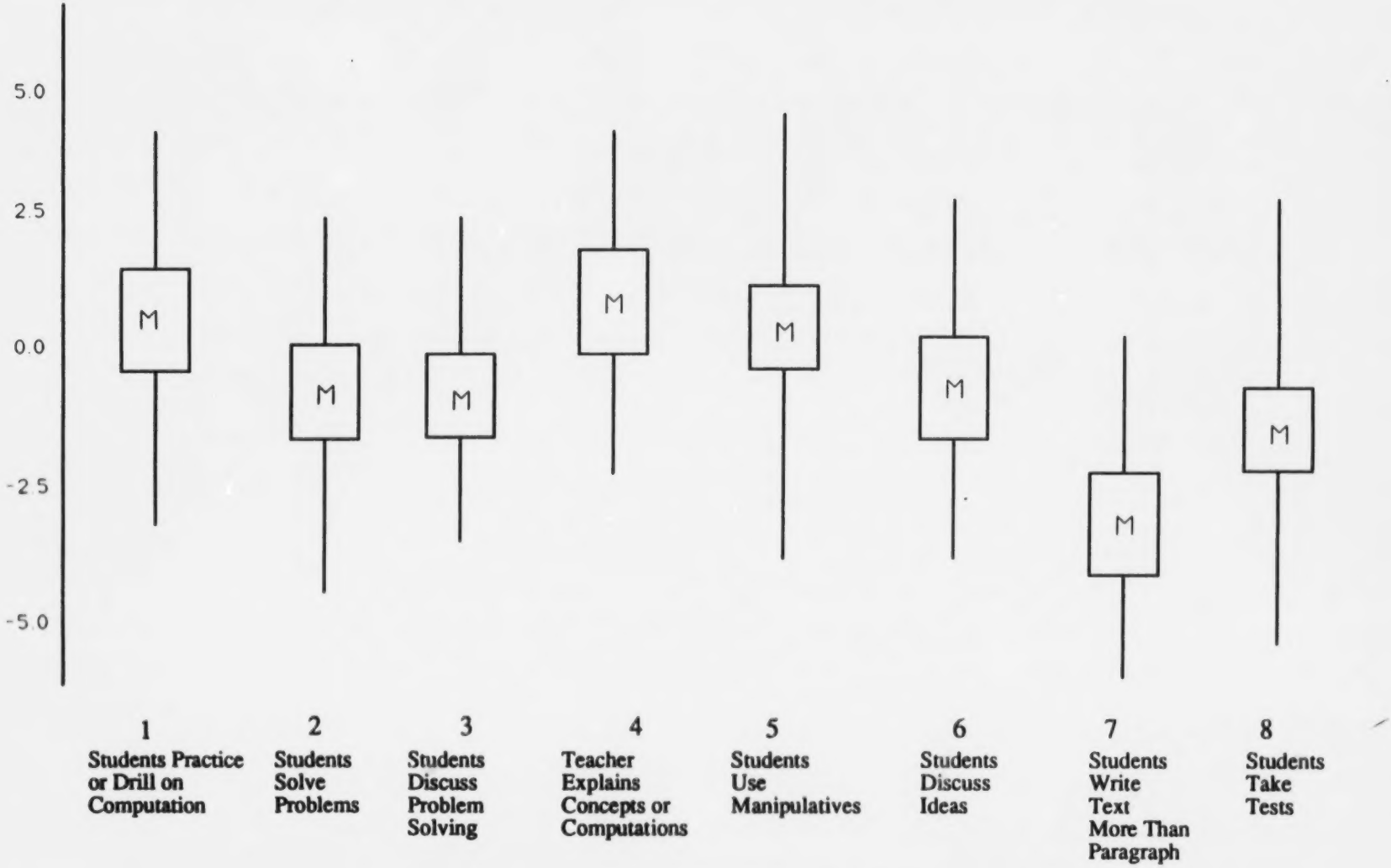



Figure 1. Box and Whiskers Plot for Teachers' Deviated Scores on Reported Instructional Practices in Math.

Yet teachers also emphasized having students use manipulative materials or drawings to solve problems. When we initially designed the survey, we intended "students use manipulatives" to be a practice associated with teaching for understanding. We now realize that having students use manipulatives might be carried out in either a direct-instruction manner associated with basic skills teaching or in an manner aimed at constructing students' understanding. (Compare, for example, cases of teachers described by Cohen, 1990; Franke, Carpenter, & Carey, in press; Peterson, 1990; & Fennema). Teachers reported spending less time having students solve problems or discuss problem solving, and they spent the least time having students write text more than a paragraph long. Although teachers agreed with the goal of helping students master basic computational skills, they overwhelmingly endorsed the goal of helping students to solve problems and think mathematically with a median response of 6 on a 6-point scale.

Science. The medians and distribution of teachers' deviated scores for their instructional practices in science are shown in Figure 2. As was the case in social studies, teachers reported spending the least proportion of time on having students write text more than a paragraph long, and little variation existed among teachers in their reports of having students write text in science. Teachers reported spending the most time in discussions of facts and ideas presented in the text or in class; reading and lecture on the text; watching demonstrations by the teacher or doing "hands-on" activities; and in teacher-led critical thinking activities. They spent less time on having students create models, maps or diagrams. We intended the practices associated with teaching for basic skills to be 1, 2, 3, and 8, and practices most associated with teaching for understanding to be 4, 5, 6, and 7. However, as is the case for manipulative use in mathematics, we realize that watching demonstrations by the teacher, hands-on activities, and teacher-led critical thinking activities might be carried out either in a direct-instruction manner associated with basic skills teaching or in an

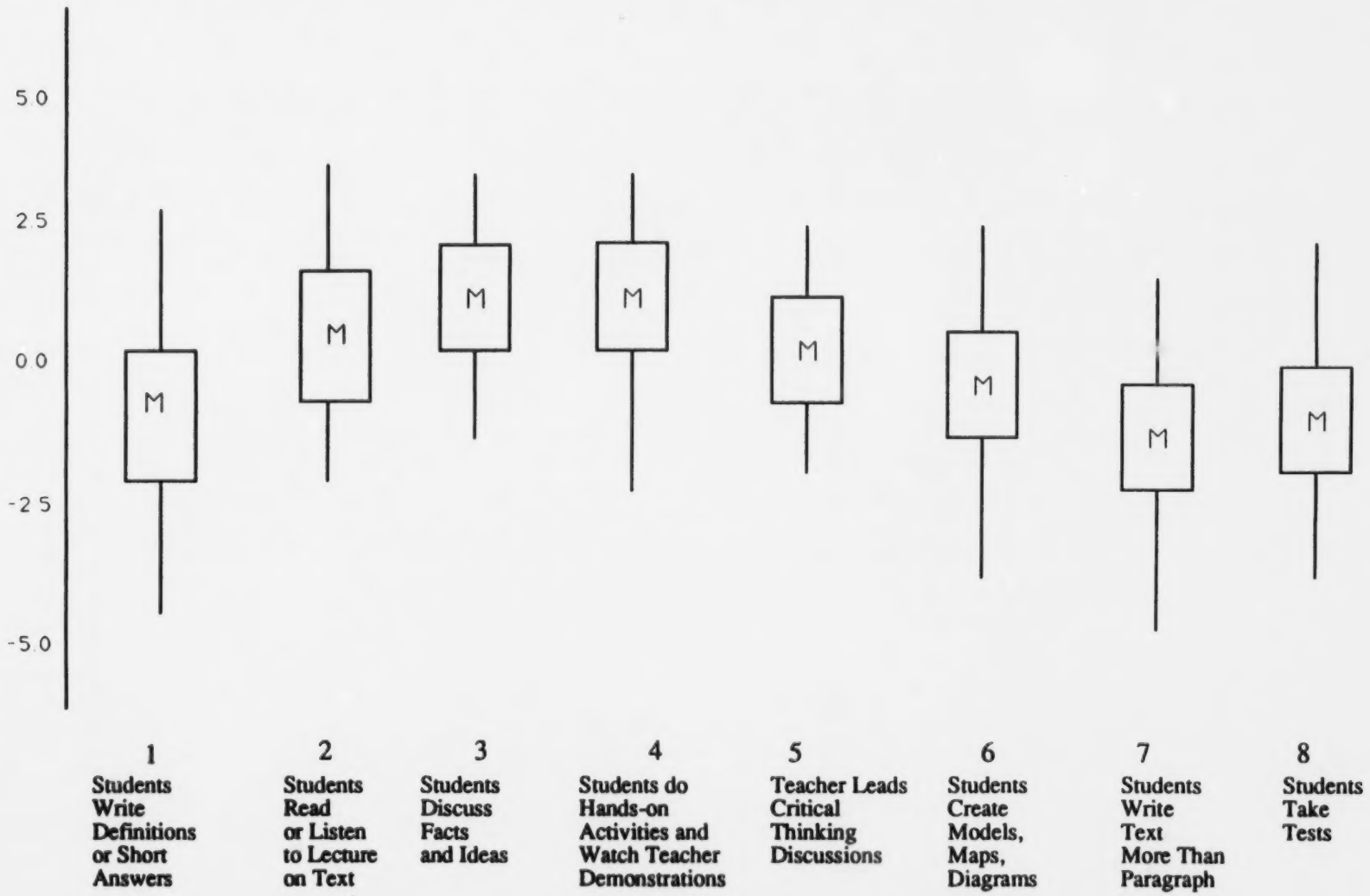



Figure 2. Box and Whiskers Plot for Teachers' Deviated Scores on Reported Instructional Practices in Science.

manner aimed at constructing students' understanding. This ambiguity makes teachers' responses to these two activities difficult to place as either basic skills teaching or teaching for understanding. Interestingly, teachers gave equal endorsement to the goal of basic skills learning and the goal of understanding and using concepts and processes in science.

Social studies. Figure 3 shows the box and whisker plot for teachers' reported instructional practices in social studies. When we designed the survey we intended practices 1, 2, 5, and 8 to be most associated with teaching for basic skills and practices 3, 4, 6, and 7 to be most associated with teaching for understanding. Teachers reported spending the greatest proportion of time on teacher-led discussions of content, teacher-led critical thinking activities, and textbook reading and recitation activities aimed at acquiring facts. Teachers varied the most in the extent to which they emphasized reading and recitation of facts, with some teachers spending more than 75% of their time in this practice and others spending no time in it. Teachers reported spending the least proportion of time on having students write text more than a paragraph long, and little variation existed among teachers in their reports of having students write text in social studies. Teachers agreed most strongly with the goal of helping students develop understanding and the ability to think critically about social studies, giving it a median of 5 on a 6-point scale, with 50% of the teachers giving it a rating between 4.5 and 6.0. But teachers also agreed with the goal of helping students master basic facts and concepts, giving it a median rating of 4 on a 6-point scale.

Literature. The medians and box plots of scores on teachers' reported instructional practices in literature are shown in Figure 4. Teachers least frequently emphasized students taking written tests in literature. They also placed considerably less emphasis on having students write text more than a paragraph long than they placed on having students read books of their own choice or on having students discuss

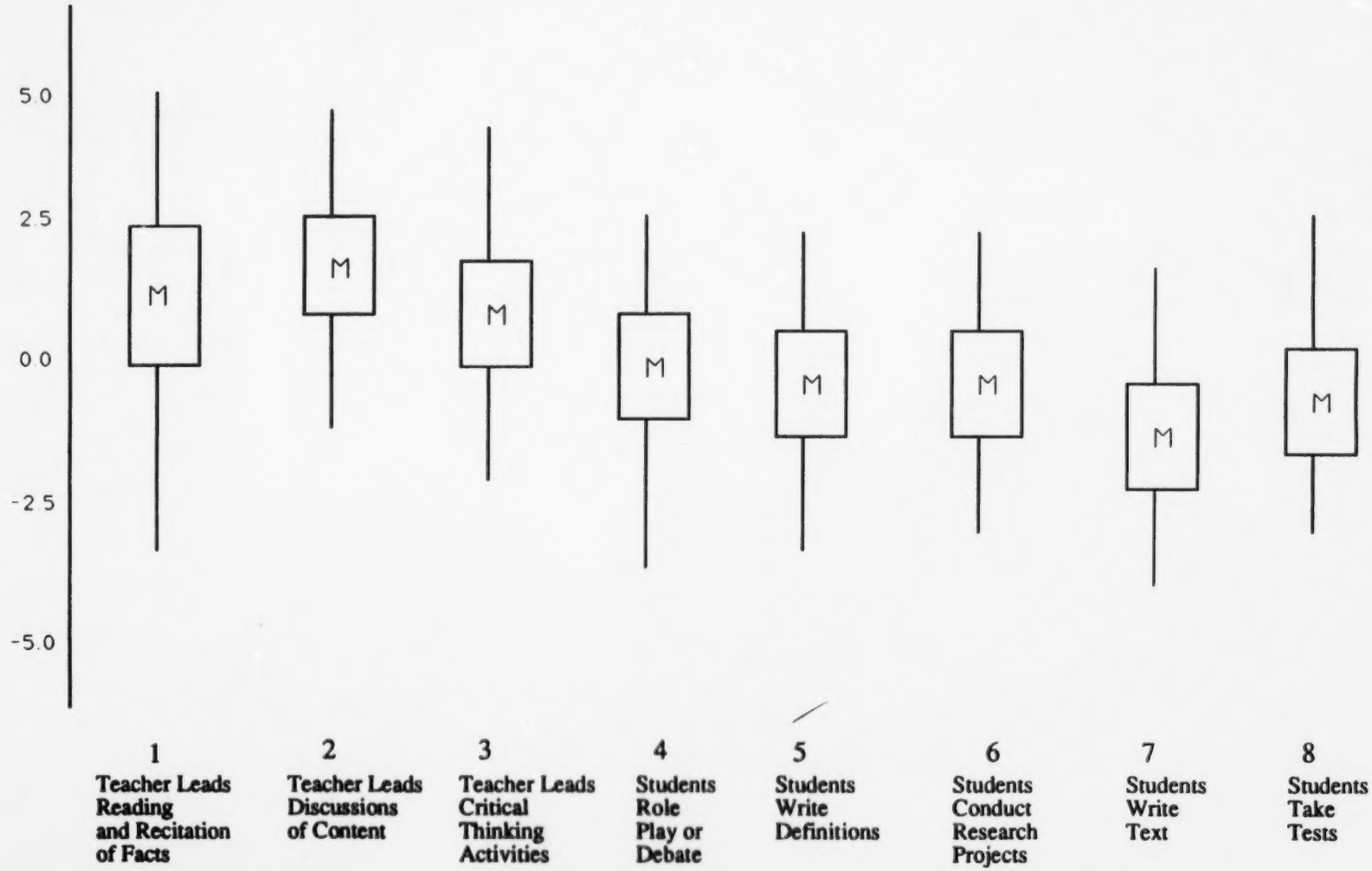



Figure 3. Box and Whisker Plot for Teachers' Deviated Scores on Reported Instructional Practices in Social Studies.

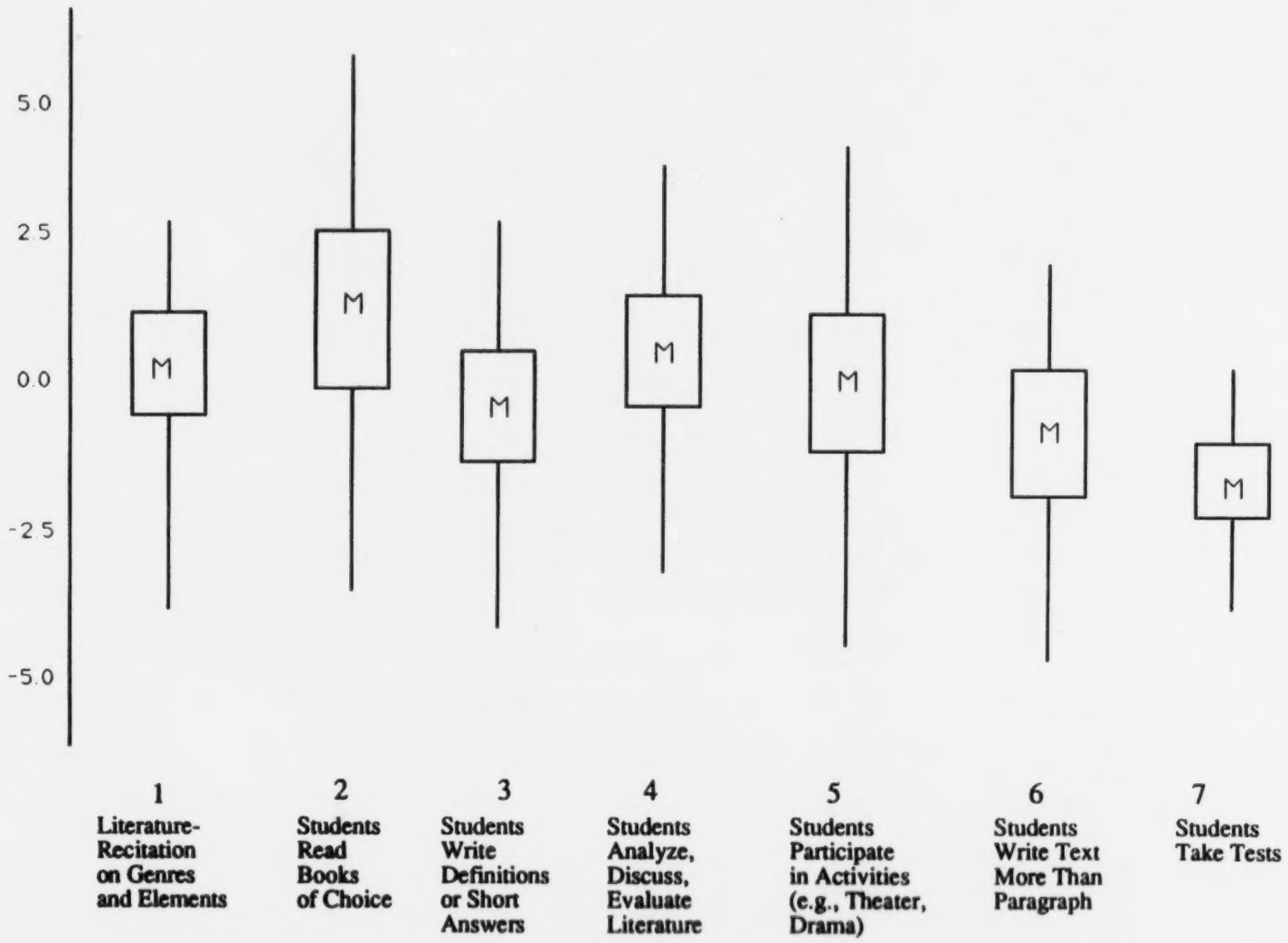



Figure 4. Box and Whiskers Plot for Teachers' Deviated Scores on Reported Instructional Practices in Literature.

literature. Teachers gave equal endorsement to the goal of helping students learn about specific literary elements and types of literature and to the goal of helping students learn to analyze and critically evaluate literature.

Art. Figure 5 shows the box and whisker plot for teachers' reported instructional practices in social studies. In art, the least frequently reported practices were having students write text more than a paragraph long, having students take tests, and having students view, discuss, and judge art created by themselves. In contrast, elementary teachers reported that they most frequently had students make individual art objects as a whole-class activity. The next most frequent practice was for the teacher to demonstrate or answer questions about how to make an art object or to use media and tools. Consistent with these two practices most frequently used by teachers, the teachers endorsed the goal of having students acquire basic techniques and learn about art media and tools considerably more than they endorsed the goal of helping students understand and think critically about art and how art is created, viewed, and interpreted.

Music. The medians and distribution of teachers' deviated scores for their instructional practices in mathematics are shown in Figure 6. As was the case in art, the three least frequently reported practices in music were having students write text more than a paragraph long, having students take tests, and having students view, discuss, and judge music performed by themselves. In music, the two most frequently reported practices were to have students perform music directed by the teacher and to have students engage in creative movement activities to explore concepts such as pitch, rhythm, style, or form. In keeping with these practices that they engaged in most frequently, teachers of music endorsed the goals of helping students acquire basic techniques of singing and playing music and helping student learn to enjoy music and express themselves They endorsed both these goals considerably more than the goal of helping students understand and think critically about musical forms and how they are created and interpreted, and they actually disagreed with this latter goal.

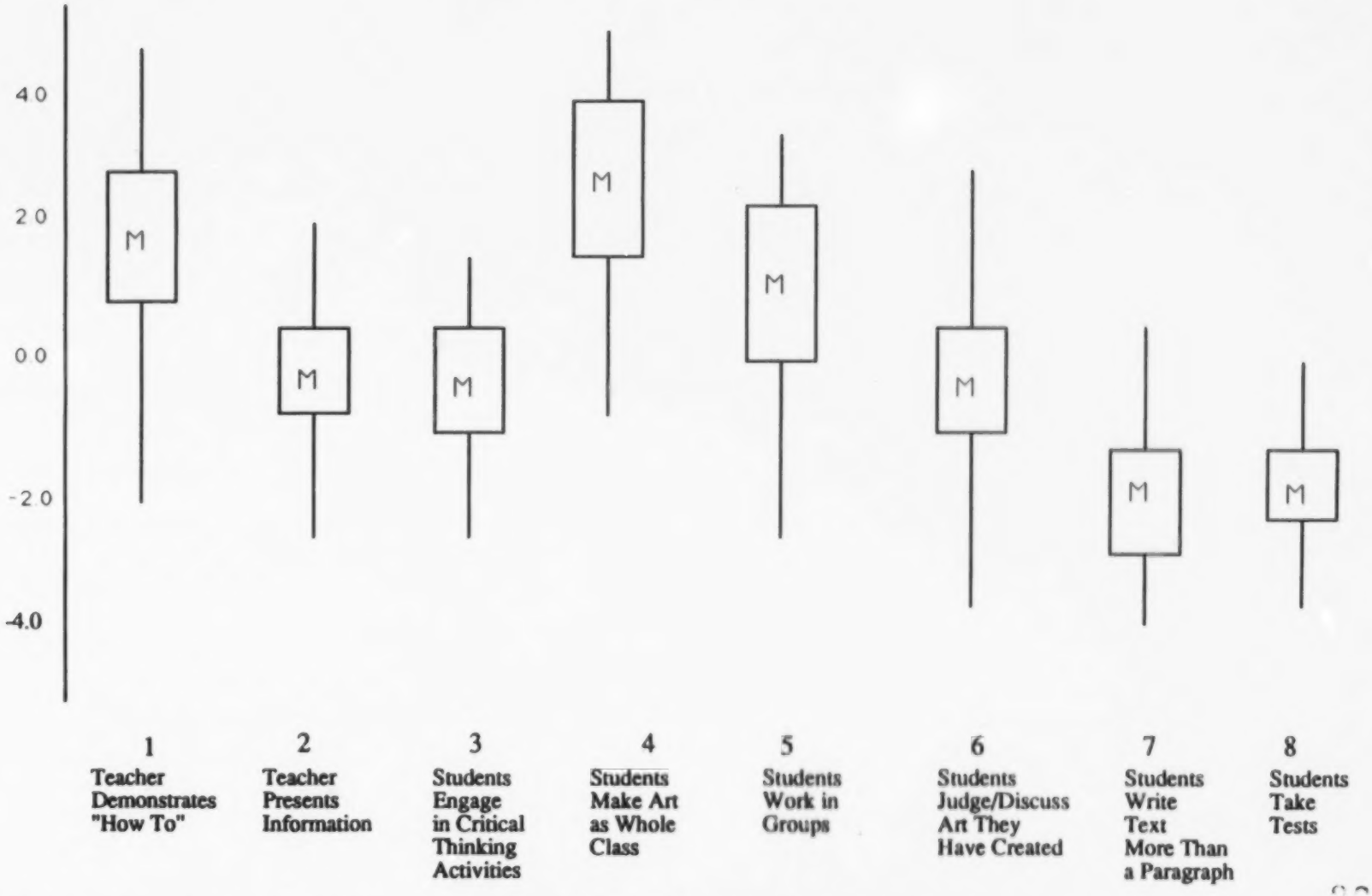



Figure 5. Box and Whiskers Plot for Teachers' Deviated Scores on Reported Instructional Practices in Art.

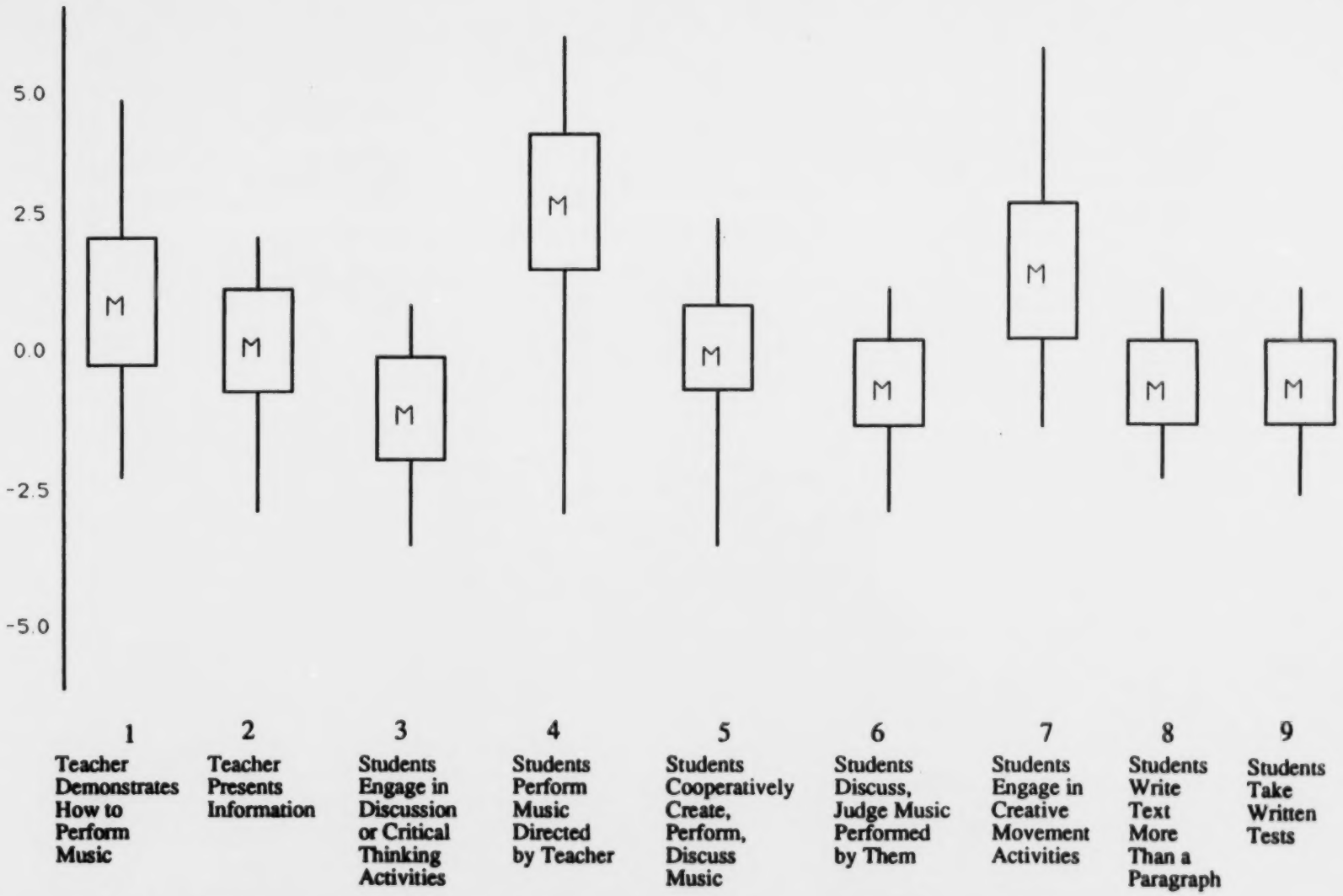



Figure 6. Box and Whiskers Plot for Teachers' Deviated Scores on Reported Instructional Practices in Music.

Teachers' Self-Ratings of Knowledge and Effectiveness

Regular elementary classroom rated themselves as quite effective in teaching reading, literature, writing, mathematics, science and social studies. They gave themselves a median rating of 4 on a 5-point scale or "considerably more effective than most elementary teachers" in each of these subjects. However, they felt less effective in teaching art and music, giving themselves median ratings of only 3 and rating themselves as "about equal to most teachers." Teachers' self-ratings of their knowledge were similar to their ratings of effectiveness. They rated themselves as only about equal to most teachers in their knowledge in art and music (median of 3), but they rated themselves as considerably more knowledgeable than most other teachers in other subjects (median of 4). The only exception was science where the median self-rating by teachers was a 3 in knowledge and a 4 in effectiveness.

The analyses of variance revealed influences of type of teacher, grade level, and state on teachers' self-reports of their knowledge and effectiveness. In art, music, and science, specialists in each of these respective areas rated themselves as significantly more knowledgeable and effective in teaching these subjects than did regular elementary teachers. In reading, primary grade teachers (K-2nd) rated themselves as significantly more knowledgeable and effective at teaching reading than did upper grade (4th-6th) teachers. In writing, elementary teachers in California rated themselves as significantly more knowledgeable and effective in teaching writing than did elementary teachers in Florida or Michigan.

Contexts of Teachers' Reported Instructional Goals and Practices

Out of the four-way analyses of variance on teachers' reported instructional goals and practices came few significant main effects of state, SES, grade and size of district, but many higher order interactions. We graphed these main effects and higher-order interactions in an attempt to interpret them in light of possible contextual influences on

teacher's' practices. In doing so, we found we gained little understanding, and many of them made little obvious sense.

For example, we found main effects of grade and state and a significant state x grade x size of district interaction on teachers' reported time spent having students discuss mathematical ideas as a class or in small groups. In examining these effects, we found that in all schools, teachers of kindergarten and first grade reported spending relatively more time having students discuss mathematical ideas than did teachers of other grades with the exception of kindergarten and first-grade teachers in the large Michigan district who reported spending significantly less time in this practice than at the higher grade levels. They also reported spending relatively less time in this practice than did any of the teachers at any grade level in any of the other districts. Among second through sixth grade teachers in the large districts, there was no difference between states in their reported frequency of time teachers devoted to having students discuss mathematical ideas. However, among the three moderate sized districts, teachers in California consistently reported having students discuss mathematical ideas more than did teachers in either Michigan or Florida.

Another example was a significant state x district size effect that we found for teachers' reported use of having students create models, diagrams, or concept maps in science. California teachers in large districts reported spending slightly less time having students create these representations in science than did teachers in large districts in Florida or Michigan. But among teachers in moderate-sized districts, California teachers reported spending the greatest amount of time in this practice, and Michigan teachers reported spending the least amount of time with Florida teachers falling in between.

We offer a final example to illustrate how complex higher order interaction effects also appeared for teachers' reported goals. We found a significant SES x state x size of district x grade interaction on the difference score for teachers' endorsement of social

studies goal 2 (aimed at students' understanding) over goal 1 (aimed at students acquiring basic skills). In moderate-sized districts, there was no significant difference between schools at different SES levels in their relative ratings of goal 2 over goal 1 for teachers at grades two through six. However, there was a significant difference for kindergarten and first-grade teachers. In the large districts, teachers at different grade levels reported varying degrees of discrimination between these two goals depending on the SES level of their school. Teachers in the moderate-sized district in California reported the greatest difference in their agreement with social studies goal 2 over goal 1 with teachers in Florida and Michigan making less of a distinction. Teachers from the moderate sized district in Michigan made the smallest distinction in their ratings on these two goals.

## Discussion

### Instructional Practices Emphasized by Elementary Teachers

One striking pattern that emerged across all subjects--literature, mathematics, science, social studies, art and music--was that the least common practice reported by teachers was to have students write text more than a paragraph long. Indeed, in every one of the six elementary subjects including literature, the *median* proportion of time that teachers had students spend in writing was only 1-5%. Furthermore, teachers were remarkably consistent in their reports of *not having students write* text more than a paragraph long. Remarkable consistency existed across teachers as well as consistent across subject matters. This is particularly interesting because both students' spoken discourse and students' written discourse are central to teaching for understanding (Center for the Learning and Teaching of Elementary Subjects, 1993). Such teaching seeks to elicit students' understandings through discourse and then to work with these understandings in the instructional context. Teaching for understanding would have students creating the learning "text" in other ways, such as through students working on their own projects' creating models, diagrams, maps or other representations; inventing

and debating new ideas or ways to solve problems through classroom discourse; creating and critiquing their own art, music, drama, or writings.

A second pattern that emerged across all subjects except literature was that teachers tended to focus on practices that were associated with basic skills instruction rather than practices associated with teaching for understanding. We found teachers' relative emphases on basic skills activities particularly puzzling given that these teachers taught in schools that had been nominated by district administrators as "particularly effective in helping students develop conceptual understanding, problem solving, and higher level thinking." For example, in mathematics teachers reported giving the least emphasis to students' solving problems, students' discussions of problem solving, students' discussions of ideas, and students' writing text more than a paragraph long. They gave greatest emphasis to students' practicing or drilling on computational skills and teachers explaining concepts or computational procedures. In social studies, teachers emphasized reading and recitation of facts and teacher-led discussions the most, while they emphasized students' research projects and students' writing text the least. Similarly, in science teachers stressed reading and lecture on the text and discussions of facts or ideas from the text although they also stressed teacher-led critical thinking activities and watching demonstrations by the teacher. They placed considerably less stress on students' creating models, maps, or diagrams, and they placed the least emphasis on having students write text more than a paragraph long. In art and music, teachers placed greatest emphasis on students' making art objects as a whole-class activity and performing music directed by the teacher. In contrast, teachers placed considerably less emphasis on students' working in self-directed groups or cooperatively to create or discuss art or music and on students' discussing or judging art or music created by themselves.

Interestingly, reported practices for literature did not seem to fit the pattern in other subjects of relative imbalance weighted toward basic skills instruction and away

from teaching for understanding. In literature, teachers' most frequently reported practices included a balance of basic skills instruction and teaching for understanding. Their most frequently reported practice was having students read books of their choice. Teachers' next most frequently reported practice was having students analyze, evaluate, and discuss literary selections, but teachers gave equal emphasis to lecture-recitation on specific literary elements and different types of literature. In addition, they reported emphasizing students' participation in readers' theater, drama, and writing in different literary genres.

It seems likely that teachers' reported practices in literature teaching overlapped substantially with their teaching of reading and other language arts even though the directions on the survey stated that "literature refers to reading literature and learning about literary forms, appreciation, analysis, etc.; it *may or may not overlap* with the teaching of reading and other language arts." Yet because the survey included pages on every subject taught in elementary school but did not included specific items on goals and practices in reading, many teachers probably interpreted the literature items in such a way so as to include their goals and practices teaching of reading and other language arts as well.

Why might reported teachers' practices in literature reflect a greater orientation toward teaching for understanding than their reported practices in the other subject areas? One possibility is that because elementary teachers have greater subject matter knowledge in literature and reading than in the other elementary subjects, they feel more comfortable in this subject in attempting to move away from basic skills instruction toward the kinds of understanding-oriented instruction being emphasized in the current reform. Indeed, this hypothesis was supported by teachers' self-ratings of their own subject-matter knowledge. Regular classroom teachers self-ratings of their subject matter knowledge showed that teachers had the highest median ratings for reading followed by literature and the lowest median ratings for music and visual arts. Similarly,

regular classroom teachers rated themselves as most effective in teaching reading and literature and least effective in teaching music, visual arts, and science. A second possibility is that the reforms oriented toward understanding and away from basic skills actually had gotten a good start in literature and reading, associated with the movement away from use of basal readers toward comprehension-oriented instruction or "whole language" and the use of "real books" or trade books to teach reading and literature in the elementary school. Certainly, at the national level reforms in reading and literature might traced to the publication of Becoming a Nation of Readers (Anderson, Hiebert, Scott, & Wilkinson, 1984).)--a document that predated by several years similar national reform documents in other areas such as mathematics (National Council of Teachers of Mathematics, 1989, 1991) and science (Rutherford & Ahlgren, 1990).

Elementary Teachers' Reported Goals

Consistent with their reported practices in literature that incorporated both teaching literature for understanding as well as for basic skills, elementary teachers weighted equally the goals of helping students learn about specific literary elements and helping students learn to analyze and critically evaluate literature. Also consistent with their basic skills practices in art and music, teachers espoused the goal of helping students acquire basic techniques over the goal of helping students understand and think critically about art concepts or musical forms.

In mathematics and science, teachers also endorsed equally these twin goals of learning basic skills and developing understanding even though their reported practices in these subject areas seemed to reflect a greater weighting toward basic skills instruction than toward teaching for understanding. Moreover, in social studies teachers actually gave greater endorsement to the goal of helping students develop understanding and think critically in social studies than to the goal of helping students master basic skills and concept definitions, even though their reported practices seemed not to reflect such an emphasis.

We found it difficult to makes sense of teachers' practices in light of their espoused goals. Possibly, teachers had begun to change their goals to move beyond basic skills because they had internalized some of the "rhetoric" of the goals of the current reform although they had not yet changed their practices. Alternatively, perhaps teachers themselves actually saw their espoused goals as consistent with their reported practices even though we did not. A third possibility is that words such as, "critical thinking" and "understanding" might have meant very different things to teachers (and readers) who read and responded to the survey than they meant to us, as researchers (and authors), when we developed and wrote the survey items. Any or all of these factors might have influenced teachers' responses, in interactive and dynamic ways.

With greater resources, we might have been able to sort our these alternative explanations. For example, we might have conducted follow-up interviews with the teachers, and through these we might have been able to develop a greater understanding of teachers' thinking about their practices and to probe further what seemed to us to be puzzling inconsistencies between teachers' reported goals and practices. (See Knapp & Peterson, 1991, for a description of such an inquiry that was successful.) Such interviews might have also have helped us understand what certain words and statements on the survey meant to teachers. We did deepen our understanding of teachers' perspectives a year later when we conducted case studies of mathematics teaching in several of the California teachers' classrooms. When we interviewed and observed these teachers, they expressed their convictions that they were teaching mathematics for understanding. Yet researchers' and reformers' readings of these same teachers' practices saw them as aimed more at teaching basic skills than at teaching for understanding (Ball, 1990; Darling-Hammond, 1990; Sykes, 1990; Peterson, 1990; Wilson, 1990).

Teachers' Reported Goals, Practices, and Knowledge in Context

We searched for and expected to find differences among teachers in their self-reported knowledge, goals and practices depending on the state and local contexts. In particular, we thought that teachers' reported goals and practices might reflect emphases of state policymakers in the three states. In 1988, 43 out of 50 states reported having policies and practices aimed at encouraging elementary teachers to teach subjects for understanding and thinking. The state of California was especially advanced in developing educational policies beyond the basic skills. By 1988, California had published extensive curriculum frameworks aimed at understanding in each subject and had adopted textbooks and developed state achievement tests aligned with the curriculum frameworks. In contrast, Florida in 1988 had policies still aimed mainly at supporting learning of the basic skills. Despite these differences between California and Florida in their published policies, our survey of teachers showed few consistent differences between California teachers' reported instructional goals and practices in elementary subjects and those reported by teachers in Michigan and Florida.

One of the few clear main effects of state appeared for teachers' ratings of their knowledge and effectiveness in teaching writing; California teachers rated themselves significantly more knowledgeable and effective in teaching writing than Florida and Michigan teachers. This may reflect the influence of the California Writing Project that has been operating as a statewide professional development network for a number of years. However, the influence did not extend to teachers' reports of the frequency with which they had students write text more than a paragraph long in each subject. Teachers reported a median frequency for writing of less than 5% in every subject, and in this respect, teachers in California did not differ significantly from teachers in Michigan or Florida. Also, we found no consistent differences by state in teachers' reported emphasis on writing text more than a paragraph long.

The lack of clear main effects main effects of state on teachers' reported instructional goals and practices led us to suspect that the gap between state policymakers' visions and teachers' instructional practices is greater than most policymakers assume. We learned more about the vast distance between the rhetoric of the policymakers and the realities of classroom practice when we conducted case studies of mathematics teaching in some of the survey teachers' classrooms during the 1989-90 school year. Of the 23 elementary teachers we observed and interviewed, we found that only two teachers had actually seen copies of the state's curriculum framework in mathematics. In one large California district, district-level policies continued to support mastery learning, testing and retesting, pacing charts, and direct instruction in the core elementary subjects. It was not surprising then that a second-grade case study teacher in that district expressed her feeling of distress at being pressed to teach mathematics for understanding while at the same time receiving messages to continue to use mastery learning and direct instruction to teach basic skills to her class of low socioeconomic students (Peterson, 1990). The same teacher also confessed that she felt that she had inadequate knowledge of mathematics to teach in this new way. Like the other teachers in our case studies, this teacher had been provided with few professional development opportunities at the state or local levels.

We concluded from our case studies of California teachers as well as from our analyses of variance on teachers' survey responses that contexts (including the school, state, and local policy contexts) *do* make a difference. However, we do not see influences of context as simple, main effects, that can be pulled apart, but rather as effects that are multiple, interwoven, and dynamic. We found it impossible to interpret the analyses of variance results which showed multiple significant higher level interaction effects of contexts on teachers' reported goals and practices. We found it much easier to interpret such interaction effects through our case studies of teachers. For example, the case study teacher described above helped us understand how

policies at the state and district and school come together and influence a teacher's thinking about her practice of teaching mathematics to low-income children (Peterson, 1990). In exploring possible contextual influences on teachers' practice, we came to agree with Cronbach (1975) when he pointed to the pervasiveness of higher order interaction effects and argued for the use of case studies or narrative forms to describe and interpret them.

## Conclusions and Implications

In the end, we questioned what useful knowledge we gained from our survey. On the one hand, the survey allowed us to get a broad sweep of the views of hundreds of teachers in a number of schools and districts in California, Michigan, and Florida. Certainly, considerably more resources would have been required to interview or visit such a large number of teachers. On the other hand, we puzzled about the patterns we saw in mathematics, science, and social studies where teachers' endorsed understanding-oriented goals yet reported a prevalence of what seemed to us as basic skills practices. This apparent discrepancy made us wonder about the meanings that teachers brought with them in responding to the questions on our survey about their goals and practices. To understand these meanings we needed to interview teachers and probe the assumptions they were making and the meanings of the words they used to describe their teaching practice. When we did this with a group of California teachers whom we had surveyed, we found that we understood much more about how teachers created their practice within the contexts in which they work (Cohen & Ball, 1990).

If teachers are key to educational reform, then reformers and policymakers will need to understand how and why teachers teach the way they do and how they are interpreting the new goals and visions of practice which they are being pressed to enact. What will be needed are in-depth, contextualized understandings of teachers' goals and practices that reveal the assumptions and meanings that teachers bring to their work.

More than surveys will be necessary to get beneath the rhetoric and to measure and understand the progress of the current reform.

## References


Anderson, R. C., Hiebert, E. H., Scott, J. A., & Wilkinson, I. A. G. (1984). Becoming a nation of readers: The report of the commission on reading. Washington, DC: The National Institute of Education.

Ball, D. L. (1990). Reflections and deflections of policy: The case of Carol Turner. Educational Evaluation and Policy Analysis, 12(3), 247-260.

Brophy, J. (1988). Teaching for conceptual understanding and higher order applications of social studies content. (Elementary Subjects Center Series No. 3). East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Carnegie Forum on Education and the Economy. (1986). A nation prepared: Teachers for the 21st century: The report of the task force on teaching as a profession. New York: The Carnegie Corporation.

Center for the Learning and Teaching of Elementary Subjects (1993). Final Report East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Cianciolo, P. J. (1988). Critical thinking in the study of children's literature in the elementary grades (Elementary Subjects Center Series No. 5). East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Cohen, D. (1988). Teaching practice: Plus que ça change . . . In P. W. Jackson (Ed.), Contributing to educational change: Perspectives on research and practice (pp. 27-84). Berkeley, CA: McCutchan.

Cohen, D. (1990). A revolution in one classroom: The case of Mrs. Oublier. Educational Policy and Policy Analysis, 12, 311-331.

Cohen, D., & Ball, D. (1990). Relations between policy and practice: A commentary. Educational Policy and Policy Analysis, 12, 331-338.

Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. American Psychologist, 30, 116-127.

Darling-Hammond, L. ( 1990). Instructional policy into practice: "The power of the bottom over the top." Educational Policy and Policy Analysis, 12, 339-349.

Elmore, D., & McLaughlin, M. (1988). Steady work: Policy, practice, and reform in American education. Santa Monica, CA: RAND Corporation.

Fennema, E., Franke, M., Carpenter, T., & Carey, D. (in press). Using children's mathematical knowledge in instruction. American Educational Research Journal.

Freeman, D. (1989). State guidelines for reshaping academic curricula in elementary schools: A 50-state survey East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Knapp, N., & Peterson, P. L. (1991). What does CGI mean to you? Teachers' ideas of a research-based intervention four years later East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

May, W. T. (1989). Understanding and critical thinking in elementary art and music. (Elementary Subjects Center Series No. 8). East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

National Commission of Excellence in Education. (1983). A nation at risk. Washington, DC: U.S. Government Printing Office.

National Council of Teachers of Mathematics (1989). Curriculum and evaluation standards for school mathematics. Reston, VA: Author.

National Council of Teachers of Mathematics. (1991). Professional standards for teaching mathematics. Reston, VA: Author.

Murnane, R., & Raizen, S. (Eds.). 1988. Improving indicators of the quality of science and mathematics education in grades K-12. Washington, DC: National Academy Press.

Peterson, P. L. (1990). Doing more in the same amount of time: Cathy Swift. Educational Evaluation and Policy Analysis, 12, 261-280

Porter, A. (1991). Creating a system of school process indicators. Educational Evaluation and Policy Analysis, 13, 13-29.

Prawat, R. (1993). Commonalities and differences in views about ideal and actual curriculum in six subject matter domains East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Putnam, R. T., Lampert, M., & Peterson, P. L. (1990). Alternative perspectives on knowing mathematics. In C. Cazden (Ed.), Review of research in education (Vol. 16, pp. 57-150). Washington, DC: American Educational Research Association.

Roth, K. (1990). Conceptual understanding and higher level thinking in the elementary science curriculum: Three perspectives East Lansing: Michigan State University, Institute for Research on Teaching, Center for the Learning and Teaching of Elementary Subjects.

Rutherford, F. J., & Ahlgren, A. (1990). Science for all Americans. New York: Oxford University Press.

Shavelson, R., McDonnell, L., Oakes, J., & Carey, N. (1987). Indicator systems for monitoring mathematics and science education. Santa Monica, CA: The RAND Corporation.

Sykes, G. (1990). Organizing policy into practice: Reactions to the cases. Educational Evaluation and Policy Analysis, 12, 349-353..

Tukey, J. W. (1977). Exploratory data analysis. Reading, MA: Addison-Wesley.

Wilson, S. M. (1990). A conflict of interests: The case of Mark Black. Educational Evaluation and Policy Analysis, 12, 293-310.

## Appendix: Teacher Survey Developed by the Center for the Learning and Teaching of Elementary Subjects

# Michigan State University

Center for the Learning and Teaching of Elementary Subjects
College of Education, Erickson Hall
East Lansing, Michigan 48824-1034

Institute for Research on Teaching
(517) 353-6415

Dear Colleague,

This questionnaire is part of research being conducted by the Center for the Learning and Teaching of Elementary Subjects, Michigan State University. Our mission is to study the elementary school teaching of mathematics, science, social studies, literature, and the arts, using what we learn to make recommendations for improving the education of our nation's students.

The questionnaire, which is being administered to teachers in several states, addresses teachers' goals and classroom practices in teaching elementary subjects. The questionnaire is important for helping us get information about these issues from a large number of teachers. The questionnaire appears to be lengthy, but many of the questions can be answered quite quickly. We have tried hard to keep the questionnaire as brief as possible. Most teachers have been able to complete it in 20-30 minutes.

As researchers, we are not connected with your school district, nor are we evaluating your teaching, your school, or your school district. We will not use data that we collect in any way that would reflect on you personally. Your responses to the questionnaire will be held in confidence. You will be identified only by number in analysis and reporting of the research. Your participation is voluntary, and you may decide to have your responses deleted from our data at a later time without penalty. Your responses, however, are important to providing an accurate picture of your school and its teachers. We will be happy to provide you with results of the study.

We hope that you will take the time to answer our questions for this important research. If you need further information or have questions, please feel free to call one of us collect.

Dr. Ralph Putnam, Study Coordinator (517) 353-0637
Dr. Donald Freeman, Study Coordinator (517 ) 353-0628
Dr. Penelope Peterson, Center Co-Director (517) 355-1737
Dr. Jere Brophy, Center Co-Director (517) 353-6470

## Questionnaire Instructions

Please sign the informed consent statement below before completing the questionnaire. Because the questionnaire will be optically scanned, it is very important that you:

a. fill in circles completely using a **No. 2 pencil**
d. leave booklet intact (Do not detach pages.)
b. erase completely if you change a response
e. avoid folding, bending, or stapling pages
c. write only in spaces provided (Feel free to make additional comments on the separate sheet provided.)

Many of the items deal with specific subject matter areas. Note that Literature refers to reading literature and learning about literary forms, appreciation, analysis, etc.; it may or may not overlap with the teaching of reading and other language arts.

When you have completed the questionnaire, place it in the envelope provided, seal the envelope, and return it to your principal, who will forward the sealed envelopes to us.

## Informed Consent

I agree to participate in this study by completing this questionnaire. I have read about the purposes of the study and understand that my name will not appear in any reporting of the results of the study.

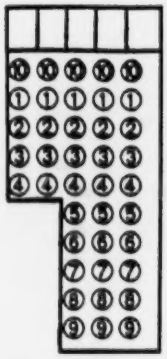
Full name _____ Date_____

Signature _____ Teacher ID number _____



*MSU is an Affirmative Action/Equal Opportunity Institution*

1. Please indicate your five digit **ID NUMBER** from the cover page:

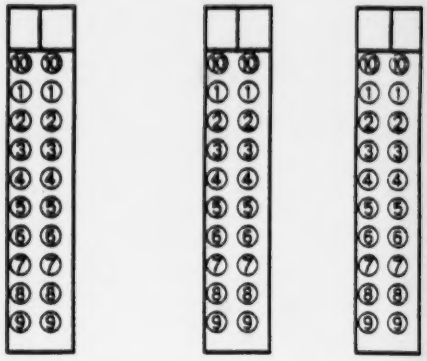


2. What grade(s) are you teaching **THIS YEAR** (indicate all that apply)

- Kindergarten ○
- First ○
- Second ○
- Third ○
- Fourth ○
- Fifth ○
- Sixth ○

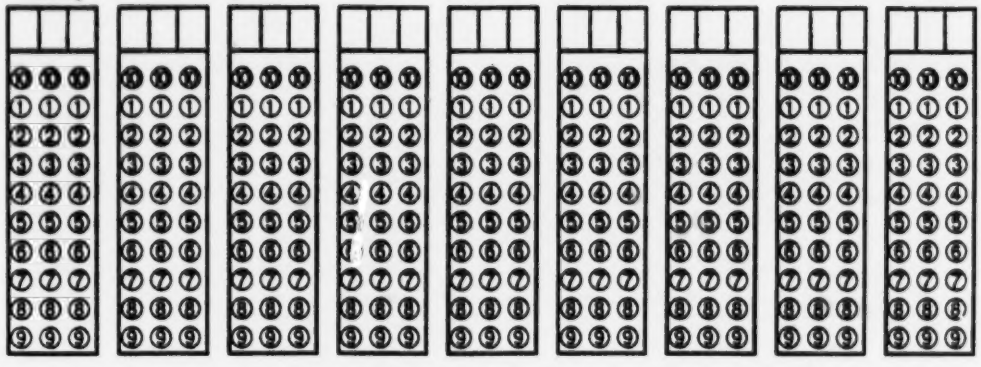
3. How many years have you taught at:

This grade level | Grades K-6 | This school



4. On average, how many **MINUTES PER WEEK** do you spend teaching each of the following subjects. If you do not teach a subject, please indicate with "000":

Reading | Other Language Arts | Literature | Math | Science | Social Studies | Arts | Music | Physical Education



5. For each of the following subjects, please rate how **EFFECTIVE** you are as a teacher compared to other elementary teachers. (Not just teachers at this school)

| | Considerably Less Than Most | Somewhat Less Than Most | About Equal To Most | Somewhat More Than Most | Considerably More Than Most | Don't Teach This Subject |
|---|---|---|---|---|---|---|
| Reading | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Literature | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Writing | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Mathematics | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Science | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Social Studies | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Visual Arts | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Music | ① | ② | ③ | ④ | ⑤ | ⑨ |

6. For each of the following subjects, please rate how **KNOWLEDGEABLE** you are as a teacher compared to other elementary teachers. (Not just teachers at this school)

| | Considerably Less Than Most | Somewhat Less Than Most | About Equal To Most | Somewhat More Than Most | Considerably More Than Most | Don't Teach This Subject |
|---|---|---|---|---|---|---|
| Reading | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Literature | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Writing | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Mathematics | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Science | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Social Studies | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Visual Arts | ① | ② | ③ | ④ | ⑤ | ⑨ |
| Music | ① | ② | ③ | ④ | ⑤ | ⑨ |

On the next six pages, the questions address specific content areas. In items 10, 14, 18, 22, 26 and 30 you will estimate the proportion of time spent in some possible activities. Because two or more of these activities may occur at the same time, the percentages may sum to more or less than 100%.

7. Do you teach **MATHEMATICS**: yes ○ If yes, please answer questions 8, 9 and 10.
no ○ If no, please skip to question number 11 on the next page.

8. Do you ever integrate **MATHEMATICS** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

9. Please indicate how strongly you agree or disagree with each of the following statements about mathematics:

| | Strongly Disagree | | | | | Strongly Agree |
|---|---|---|---|---|---|---|
| a) In teaching mathematics, my primary goal is to help students master basic computational skills. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching mathematics, my primary goal is to help students develop the ability to solve problems and think mathematically. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) Students need to master basic computational facts and skills before they can engage effectively in mathematical problem solving. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students should learn computational skills within the context of solving problems. | ① | ② | ③ | ④ | ⑤ | ⑥ |

10. Estimate the **PROPORTION OF MATH** time that is spent in the following activities:

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) Students practice or drill on computational skills. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) Students solve story problems or other problems that don't have obvious solutions. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) Students discuss different ways that they solve particular problems. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) You explain concepts or computational procedures. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) Students use manipulative materials or drawings to solve problems. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students discuss mathematical ideas, as a class or in small groups. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| h) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

11. Do you teach **SOCIAL STUDIES**: yes ○ no ○ If yes, please answer questions 12, 13 and 14. If no, please skip to question number 15 on the next page.

12. Do you ever integrate **SOCIAL STUDIES** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

13. Please indicate how strongly you agree or disagree with each of the following statements about social studies:

| | Strongly Disagree | | | | | Strongly Agree |
|---|---|---|---|---|---|---|
| a) In teaching social studies, my primary goal is to help students master basic facts and concept definitions. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching social studies, my primary goal is to help students develop understanding and the ability to think critically about social studies explanations and issues. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) Students need to master basic social studies facts and skills before they can engage effectively in critical thinking or decision making activities. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students should learn basic social studies facts and skills within the context of critical thinking or decision making activities. | ① | ② | ③ | ④ | ⑤ | ⑥ |

14. Estimate the **PROPORTION OF SOCIAL STUDIES** time that is spent in the following activities:

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) You lead the class in textbook reading and recitation activities focused on acquiring basic facts and concept definitions. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) You lead the class in discussions designed to expand students' understanding of the content. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) You lead the class through activities calling for critical thinking or decision making about the content or its implications. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) Students role play or debate events or issues they have been reading about. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) Students write vocabulary definitions or answer questions about information presented in the textbook or in class. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students conduct and report social studies research projects, individually or in groups. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| h) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

15. Do you teach **SCIENCE**: yes ○ If yes, please answer questions 16, 17 and 18.
no ○ If no, please skip to question number 19 on the next page.

16. Do you ever integrate **SCIENCE** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

17. Please indicate how strongly you agree or disagree with each of the following statements about science:

| | Strongly Disagree | | | | | Strongly Agree |
|---|---|---|---|---|---|---|
| a) In teaching science, my primary goal is to help students acquire knowledge and vocabulary about a wide variety of topics in science (such as plants, animals, light, magnets, weather). | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching science, my primary goal is to help students understand and use important science processes and scientific concepts (such as energy, interactions, cycles). | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) Elementary students are typically not ready to understand abstract scientific concepts and theories; it is best to focus instead on learning basic science skills, facts, and vocabulary. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students, even very young students, should learn about scientific processes and skills (e.g., observation, classification, prediction) while learning science concepts and theories. | ① | ② | ③ | ④ | ⑤ | ⑥ |

18. Estimate the **PROPORTION OF SCIENCE** time that is spent in the following activities:

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) Students write vocabulary definitions or short answers to questions about information presented in the textbook or class. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) Students listen to teacher explanations or read from the text. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) Students participate in discussions to clarify or review facts, vocabulary, and ideas presented in the text or in class. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) Students conduct hands-on activities or watch demonstrations by the teacher. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) You lead the class in discussions involving thinking critically or constructing explanations of phenomena. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students create models, diagrams, or concept maps. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| h) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |



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19. Do you teach **ART**: yes ○ If yes, please answer questions 20, 21 and 22.
no ○ If no, please skip to question number 23 on the next page.

20. Do you ever integrate **ART** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

21. Please indicate how strongly you agree or disagree with each of the following statements about art:

| | Strongly Disagree | | | | | Strongly Agree |
|---|---|---|---|---|---|---|
| a) In teaching visual arts, my primary goal is to help students acquire basic techniques and to learn about a variety of art media, tools, and elements of design. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching visual arts, my primary goal is to help students learn to enjoy art or to express themselves through art. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) In teaching visual arts, my primary goal is to help students understand and think critically about art concepts and how art is created, viewed, and interpreted. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students need to learn about basic art concepts, elements, and techniques before they can engage effectively in critical thinking, analysis, and evaluation of art. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| e) Students should learn basic art concepts and skills within the context of critical thinking, problem solving, or examining the aesthetic, social, and historical dimensions of art. | ① | ② | ③ | ④ | ⑤ | ⑥ |

22. Estimate the **PROPORTION OF ART** time that is spent in the following activities:

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) You demonstrate or answer questions about how to make an art object or how to use media and tools. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) You present information about art concepts, such as elements of design, style, subject matter of art works, or artists' lives. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) Students engage in discussion or other activities that require critical thinking about art elements, styles, and forms. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) Students make individual art objects as a whole-class activity. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) Students work in groups or cooperatively to make or discuss art. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students view, discuss, and judge art created by themselves or others. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| h) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

23. Do you teach **MUSIC**: yes ○ If yes, please answer questions 24, 25 and 26.
no ○ If no, please skip to question number 27 on the next page.

24. Do you ever integrate **MUSIC** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

25. Please indicate how strongly you agree or disagree with each of the following statements about music:

| | Strongly Disagree | | | Agree | | Strongly |
|---|---|---|---|---|---|---|
| a) In teaching music, my primary goal is to help students acquire basic techniques of singing or playing music and to learn about a variety of musical forms and elements. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching music, my primary goal is to help students learn to enjoy music or to express themselves through music. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) In teaching music, my primary goal is to help students understand and think critically about musical forms and how they are created, performed, listened to, and interpreted. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students need to learn about basic musical concepts, elements, and techniques before they can engage effectively in critical thinking, analysis, and evaluation of music. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| e) Students should learn basic music concepts and skills within the context of critical thinking, problem solving, or examining the aesthetic, social, and historical dimensions of music. | ① | ② | ③ | ④ | ⑤ | ⑥ |

26. Estimate the **PROPORTION OF MUSIC** time that is spent in the following activities

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) You demonstrate how to perform music (vocally or instrumentally) or answer questions about technical use of instruments. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) You present information about musical concepts such as pitch, rhythm, style, or about the subject, composer, or performer. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) Students engage in discussion or other activities that require critical thinking about musical elements, styles, and forms. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) Students perform music directed by the teacher. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) Students work in self-directed groups or cooperatively to create, perform, or discuss music. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students discuss, and judge music performed by themselves or others. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students engage in creative movement activities to explore concepts such as pitch, rhythm, style, or form. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| h) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| i) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

27. Do you teach **LITERATURE**: yes ○ If yes, please answer questions 28, 29 and 30.
no ○ If no, please skip to question number 31 on the next page.

28. Do you ever integrate **LITERATURE** with instruction or activities in other subject(s)? yes ○ no ○

If yes, which subject(s)?_____

29. Please indicate how strongly you agree or disagree with each of the following statements about literature:

| | Strongly Disagree | | | | | Strongly Agree |
|---|---|---|---|---|---|---|
| a) In teaching literature, my primary goal is to help students learn about specific literary elements (e.g., plot, characterization, theme) or different types of literature (e.g., historical fiction, folk literature, fantasy). | ① | ② | ③ | ④ | ⑤ | ⑥ |
| b) In teaching literature, my primary goal is to help students learn to analyze and critically evaluate literature. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| c) Students need to know about literary elements and the characteristics of various types of literature before they can critically analyze and evaluate literature. | ① | ② | ③ | ④ | ⑤ | ⑥ |
| d) Students should learn about specific literary elements and the characteristics of various types of literature within the context of analyzing and evaluating literary selections. | ① | ② | ③ | ④ | ⑤ | ⑥ |

30. Estimate the **PROPORTION OF LITERATURE** time that is spent in the following activities:

| | None | 1 - 5% | 6 - 10% | 11 - 25% | 26 - 50% | 51 - 75% | over 75% |
|---|---|---|---|---|---|---|---|
| a) You present information or ask students questions about specific literary elements or different types of literature. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| b) Students read trade or library books of their own choice. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| c) Students write vocabulary definitions or short answers to questions about literary selections. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| d) Students analyze, evaluate, and discuss literary selections. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| e) Students participate in activities such as reader's theater, improvisational drama, or rewriting selections into different literary styles. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| f) Students respond to questions or assignments that require them to write text at least a paragraph long. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| g) Students take written tests. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

31. Have you ever used any of the following instructional programs (or set of materials) or any other materials which were specifically designed to promote greater student understanding, problem solving or thinking?

If using this year and have used before, indicate both.

| | Using This Year | Have Used Before | Never Used | If used, would you use it again? Yes | Maybe | No | If NO, why not? |
|---|---|---|---|---|---|---|---|
| Mathematics Their Way | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Real Math | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| CSMP (Comprehensive School Mathematics Program) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| SCIS (Science Curriculum Improvement Project) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| DBAE (Discipline Based Art Education) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| SWRL (Southwestern Regional Laboratory-Elementary Art Project) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Discover Art Series | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| CEMREL (Aesthetic Education Program) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Manhattanville Music Project | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Kodály | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Junior Great Books | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| MACOS (Man: A Course of Study) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Mini-Society | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Philosophy for Children | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| CoRT (Cognitive Research Trust) | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Imagination Express | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Instrumental Enrichment | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Locally developed program (Specify) _____ | ○ | ○ | ○ | ○ | ○ | ○ | _____ |
| Other (Specify) _____ | ○ | ○ | ○ | ○ | ○ | ○ | _____ |

32. For each of the following subjects, please indicate what **TEXTBOOK** (if any) you are using this year.

Literature:_____ Mathematics:_____

Science:_____ Social Studies:_____

Visual Arts:_____ Music:_____